NEW BOOKS AND PUBLICATIONS.
Animal Physiology ; the Structure and Functions of the Human Body. By'John Cleland, M.D., F.R.S. With 158 Engravings. Price $\$ 1.50$. New York: G.
Dons, corner Fourth avenue \& 23d street.

An elementury work on the sclence, deyigned as an introduction more extended treatises. It is also well austed to interest the general reader In that most fascinating of studies-une's self-and is sufflectently free from
techutcalverblage to render the perusal of its pages pleasant while, of course, Instructive. We note no espectal difference in the plan of the book from the slmillar work prepared for colleglate uses of Protessor Huxley,
and it is necessarlly a complation from varluus sources. The illustrations are both excellent and numerous, and a valuable glossary occuples the
concluding pages. The volume is a reprint from the English edition, and d Sclence Serles.
Hydradlics of Great Rivers: The Paraná, the Uruguay,
and the La Plata Estuary. By J. J. Révy, C. E. New and the La Plata Estuary. By J. J. Rév
York: E. \& F. N. Spon, 446 Broome street.
Thegovernment of the Argentine Confederation. three yea s since, autho tory, extendlag from the $H$ Vermefo to the R10 Negro and from tory, extendlog from the kio Vermejo to the Rio Negro, and from the
South Atlantic to the Andes. This work was most thoroughly done by M. Rerg, of London, England, and the result is before us in an exceedingly handsume volume, illustrated with maps, plans, and sectlons. The book
wlli be valuable to engineersgenerally, aud espectally to those engagedin Wlll be valuable to englneersgenerally, a od espectally to those engaged in
similar work, as the author's analyels of his results triats the subject of fuvial dratnage in the brordest manner; and he gives due commendation to tne Argentine
phystcal geography

## PATENT OFFICE DECIBIONS.








lis not






## 

Inventions Patented in England by Americans
Complled from the Commissioners of Patents' Journal.]
From February a to February 8 , 1874 , Inclusive
Gom Extraction.-D. D. Cattanach, Providence, R.
Iron Shears.-W. X. Stevens, East Brook field, Mass.
Intid
Mevidil Tuter.- E. P. Whbur, Bethlehem, Pa.
Me.
Moldings
Pipe Ton
Rock Driluina.-W. W. Dunn (San Francisco, Cal.), London, England.
SE wing Machine-W. G. Beckwith, Newark, N. J.
Spindle bonstrr, etc.-C. F. Wilson et al., Brooklyn, n. y.

Stekl frog.-J. Patterson. Hornellaville, N.
Stove, etc--J. E. Sherman, Buckeport, Me.
Welding Copper.-W. G. Rehbeln et al., Baltimore, Md.

## IMPORTANCE OF ADVERTISING

## The value of advertising is so well understood by old established busines

buiness, or having for sale a new article, or wishling to sella patent, or fin manufacturer to work 1 t : upon such a class, we would impress the impor
rough which to do it
In thismatter, discretion is to be used at first ; but experience will soo determine that papers or magazines bavingthe largest circulation, among he class of perso
$\qquad$
nechanical line, we belleve there is no ether source from whith the adver Iser can get as speedy
Sienntific Ayerioan.
We do not make these suggestions merely to tacrease our advertising tronage, but to direct persons how to tncrease thetr own business. The Soifntifio Anerican has a circulation of more than 42,000 coples per week, which is probably greater than the comb
heotherpapers of itskind published in ine wuriu.

## zerent guterical and forcign eqatents.

Improved Washing Machine.
erhardt, Hochhelm, Tex.-The box of
Theophllus C. Eberhardt, Hochhelm, Tex.-The box of the machine and es of the latter ar corrugased and perforated. They are supported aud osclllated by the
suare shafts, which pass out through square holes of sockets, and have handles. The outer surface of the sockets is made cylindrical in form Therubbing boardsare forced forward by bent springs sacured to the inner ends of the sockets, whlch silde upon the boards, when the same are
drawn outward or apart. By sultable construction, the rubbing boards, roper relative positions. To the outer ends of the sockets are rigidis stached levers. These are pivoted to consecting rods, which connect with cranks formed upon a shaft. The shaft carries on its ende fly wheele hich may be arraged to rer the toring

Device to be Attached to Fences for Turning Stock. Jacob Halsh, De Kalb, in.-This invention relates to modes of effectually pecullarly formed barbs for deterring the animals fromrubbing agalnst the ence, or otherwise bringing to bear their weight, so as to break down, jure, or Impar the same.

Improved Ohest for Tea, Coffee, Rice, etc.
de 18 arranged to regalate the size of the opening between the chest proper and a troog cheat into the trough, from which they are removed bya scoop or other convenient device. The trough hasa id or cover as well as the chest, and
thas the tea or other substance fis kept from deterloration by the action of thas the tea or of

Improved Vault or Safe Door Fastening.
Cornell, 139 Center Sreet, New York city. This inven John B. Cornell, 139 Center Sreet, New York city.-This invention con ista of auxiliary boits connecting the locking boim frame to the door, bo
hat when the primary bolts which hold the frame and door in intimate contact have been broken by an explosion, the auxillary bolts, first allow ing the door to be opened far enough to glve vent to the force of the ex
plosives. then arrest the further movement, and hold the door so nearly plosives. then arrest the further movement, and hold the door so nearis
closed that access to the safe cannot be galned without cutting or breaking the door or bolte with tools. A second plan proposed conslists of slote from the locklng bolt holes in the frame extending obilquely upward or
downward toward the faside of the frame a certan diatance ; these slote are so made that, while they will secure the locking bolts with ample secuIty against the efforts of the burglars to pry and wrench the door off, yet he tremendous force of an explosive inside of the safe will force the frame along the boits to the ends of the flots, and thus afford the necessary vent
to dissipate the force of the explosion and still hold the door so as to demund too
Attachment to Self Raking Reapers for Carrying Binders oyed upon thatclass of reapers whereln the grain is bound upinto bandle before it is dropped, and the novel means for accommodating the binders. These means consist in a frame with a rear projection, a non-revoiving
shaft having end stirrups, and a stand connected with a stirrup by a chain

Improved Stud aud Button Fastening.
Phillp H. Long, Newark, N. J.-This invention relates to the
Phillp H. Long, Newark, N. J.-This invention relates to the construction of stud and button fastenings for shirt bosoms, collars, wristbands, etc.,
and consiste in a btad or button and base, so constructed that the two are securely fastened together by turning thestud or button as part of a ravo. ution, and unfastened by a reverse movement.

Improved Fire and Water Proof Roof.
Toblas New, New York city.-The object of this invention is to provide means for protecting bulldings (having interior wooden timbers) from fre as well ag from water; and conslsts of a roof made of a stratum of freproof
material latd on felt or planking to about two tnches in thickness. A plece naterial lald on felt or planking to about two inches in thickness. A plece
of timber is bedded in the fireproof substance, and has its upper side flush Fith the surface thereof. On this is placed a water-repellent covering and over this a ordinary gravel, slate, tin, or other roof.

Improved Toy Gun.
John Alexander, New York clty, and Hiram W. Gordon, Lynn, Mass.This Inventlon conslats of a toy gun, in which a rod or pusher is thrown
forward th the barrel bya spring, for expelling marbles and the like. The horward 4 n the barrel bya spring, for expelling marbles and the like. The解 secure them.

## Improved Wind Mill.

Willam C. Nelson, Kentland, Ind.-The wheel is made in two sections, eachhaving a separate portion of the hub, which is hinged to a middle has a spring attached to the middle portlon of the hub, and arranged to old the sectlon up to the wind when the latter is not too strong, and to round toward the plane of the shatt, rellere thembeel, and thus protect It from damage. The wheel ts arranged to recelve the wind from behin the standard, on which iteshaft is supported, and to dispense with a tal vane, which is required for keeping it in the winds, when arranged to tak It In advance of the post.

Improved Animal Trap.
John M. Marberry, Johnsonville, Tenn., assignor to himself and John M Palmer, of same place.-The wire cage hasthe usual entrances, and is a ached to a bottom board. A small balt box, having wire sides and a inged top, ls secured to the botcom board by hookg and staples. Th box, which is attached to the cage by wire hooks. The box hasa vertically ilding door which ls tield either closed or elevated by a sliding bolt. Whe the trap is to be put !n readiness for catching anlmals, the prison box is detached from the cage, and the bait box removed through the opening hus uncovered. Wean cured. The prison imal enters the cage, and thence passes naturally into of prison box with a view to concealment. The gate belng lowered and se cured by the bolt, th

Improved Brick Kiln
Nelson Stckels, Newell, Iowa.-The walls inclosing the kiln are perma nent. The lower portlon of the bricks to be burned, in which arches ar right angles to the arch, but with spaces between them the otherway; and long bricks areplaced across the arches a short distance above the bottom ultable for burning coal. The bricksabove the arch bricks to be burned ar rranger with spaces in both directions to be filled or partly filled with oal. Wider spaces are made between the stack of green brick and th walls, also for containing coal to be burned. They are divided vertically eparate the coal and keepit from falling to the bottom of the spaces as coalplaced in them throughout theirwhole length to be burned through out allike. The fires are started at the moaths of the arches, and kept buri ang moderatelyuntll the bricks get dry; then they are allo
throughout the kiln In all the spaces as fast as necessary

Improved Trumpet for Railway Heads,' etc
Richard E. Frye, Manchester, N. H.-The apper part to the lower side of uldes for ward and back over the mouth, as may be required, the upper wall of the mouth belng formed n the end of the sllde. To adjust and secure the sllde is a screw-threade od, passing through an eye stud on the top of the trumpet, and having
djusting and binding nuts arrangedon each side.

Improved Grate Cleaner 'Attachment.
Adolph Tleusch, Memphis, Tenn. - The object of this Invention is to pro
de fire place and other grates to which it may be applicable with a ermanent attachment for cleaning them, or removing the asbes and cinders that accumulate in the bottom thereof. To this end a shaft plvoted beneath the grate, and provided with laterally projecting arms or
fingers that whil work up bet ween the grate bars as the ehaft 18 rocked angers that wlil work up between the

## Improved Fire Extinauisher.

John Dilon, 424 Fourth avenue, New York city. - By suitable construc年 access may be oblained to the interior of the case. which is fastened the wall of the room, by turning back the cover and curning down the ary be turned down. A real ehat revolves in the interior of the case and made with shoulders, to prevent it from having a longitudinal move ent. One end of the shat is tubular, and with its cavity is connected lose to the reel disk, the end of the' wire-lined rubber hose, to the other d of which is secured a nozzie. The wire of the hose enables the water pass through it freoly, even when wound upon the reel. When the hose walar end of the shaft projects beyond the bracket, and Is made conical ofit into the tapering hole in the globular end of the short Ingress plpe the other end of which is connected with the water plpe of the hoase. The hort plpe is provided witha stop cook, which, by suitable mechanism ay be opened and closed by lowering and ralsing the sald lower part of hefrontof tha case. By othor arrangements the frontof the casemay olowe be closed while the front 1 s lowered to shat of the water when about to Find the hose upon the reel. The latter operation canses the water to run from the sald hose, so that t may be free from water when wound up. A ring groove is formed around the tapering part of the end of the shatt, so
that the water may pass constantly from the plpe to the interior of the that the water may pass constantly from the plpe to the interior of
shaft, and'thence to the hose, even when the sald shaft 18 revolving.

Improved Curtain Fixture.
Edward M. Davies, Allegheny, Pa., assignor of one half his right to Fran
ls J. Rebbeck. of same place.- The axie of a wheel ls extended sultably eyond the brackets in which the roller turna, provided at its outer end WIthascrew thread, and produced with a square or triangular cross sec-
tlon. A spring is placed between washers, elther Inside or outside of the Hon. A spring Is placed between washers, elther inside or outside of the racket, as desired. The washer ad jacent to che bracket is provided witha
ound hole in the center, whlle the other washer has a square or triangular hole to ft on the axietrunnlon and prevent the spring from getting worn. washer, from becoming unscrewed. The check nut is used to regulatethe tension of thespring on the bracket, so that the curtaln is held in place in

$$
\text { Improved Pipe Joint. }
$$

roduce an improved plpe jofnt for water, steam, gas andis invention is to which they may be connected at any sultable point and under any angle without the use or fire or solder, by simple mechanical means. The inven projecting shoulder, to tbe racessed ends of the adjolning plpes. The
sockets are cut with an outer screw thread, and firmly connected when placed on the pipes by a sleeve with right and left hand thread, which is crewed over it witnout altering the position of the plpes, whlle a leather

Improved Machine for Soldering Cans,
Willam D. Broose, Batimore, Na. Trus mprrovemente whice have been teeted by many practicat experimento, and whatch greatly lessen the average expense of solderlug the tops, caps, and
sides of cans and have made it possible for unskilled hands to do the work raplaty and well.
Machine for Marking Letters and Canceling Stamps.
Chas. J. Gof and Eimer B. Hursy, Clarksburgh, w. Va.-This invent relates to mechantcal means whereby stamped letter envelopes in the Post Offlce Department may be conventently and rapldly canceled. The inven-
tion consista in a sertes of improvementa by which a single person can, in a comparatively short space of time. do all the cancellng required at any
poat offce, thereby not only securing uniformity and thoroughness in the post offce, thereby not only securing unifo
work, but great economy of time and cost.

 and thereby utllizing what has been generally regarded as a waste product of the coal yard. The magazine, or cyllnder for holding the coal, has a
conical terminue formed of a narrow ring and vertical bars, the latter ar ranged at such distance apart as to prevent escape of the bulk of screenranged at such distance apart as to prevent escape of the bulk of screen-
Ings between them, while allowing ree access of flame and heat from the
oody of Incandescent coal in the fre pot tmmeulately below. Thus a degree or extent of combustion which would be diffcult or Impossible to pro duce and malntaln, by means of the ordinary form of cylinder in magazine stoves is assured, while the area or surface of burning coal 18 largely in-
creased and thereby a correspondingly greater degree of heat produced. creased and thereby a correspondingly greater degree of heat produced.
The gas formed In the cyllnder ts fed dowu Into the flame or burning coal by tubes, which are arranged directly over the fre pot so that the gas beby tubes, which are arranged directiy over the fre pot so that the gas beand combustiole property increased. The Invention also includes an ar
rangenent of two annular registering sildes with a fire pot open on the sides, whereby the combustion may be Increased at the base or top, or both of the bod
(mproved Transplanter
Ara Race, Cheraw, S. C.-Thls Inventlou relates generaliy to transplant.
ers, but particularly to thcese whichare used for the removal and trans. ers, but particularly to thcse whichare used for the removal and trans-
portation of cotton plants. The invention consista in comoling a con caved plate with a iectprocating spade ; in the construction of the spade
will ic convexity on the inner side and opposite the convexity of plate ; Improved Watch.
Louls Evany, Pitt sburgh, Pa.-This Invention consists in combining the
winder post with the wheels and barrel, and also th the application of winder post with the wheels and barrel, and also in the a
levers in counection with the wheel post and the dial wheel.
Water Heater, Warming Closet, etc., for Cook Stoves.
John O. Shriner and John Taylor, New Castle, Ind.-The object of this Juvnn O. Shriner and John Taylor, New Castle, Ind. The object of this
tavention to provide for household use an attachment for the ordinary cooks stove witch is adapted for heating a large or small quautity of water
by meane of a reservoir and a holluw cylinder placed in the stove plpe or by means of a reservolr and a holluw cyllnder placed in the stove pipe or
drum, the two being counected by branched circulating plpes arranged in a drum, the two being councted by brauched circulating plpes arranged in a
pecullar manner. The invention also includes a warming closet which to arranged to sllde on the cover and sllde of reservolr.

Improved Fire and Water Proof Roof.
ew, New York clty-This invention relates to a pe Tublias New, New York clty-This invention relates to a pecullar con-
struction of the roofs of bulldings so that they may be alwayspreserver sruction of the roofs of bullinge so that they may be alwayspreservedina
waterproof condtico, and yet allow the same to serveas a walkover which Waterproof condition, and yet allow the same to serveas a waikover which
lamaltes or servants may travel in order to utllize the same for drying

## Improved Biudiug <br> Improved Bindiug Attachment Cor Harvesters.

 Whllam M. and George H. Howe, Lausing, Milun.-This Invention conslatsin combluing a straw rope twister, a binding arm, a tueker and a cutter so in combluing a straw rope twlister, a binding arm, a tueker and a cutter so
that the rope st made and dellvered automatically ; also in certaln suopldiary features of improvement
of the binding attachment.
Improved Water and Gas Cut Of.
 complatng with a valve rod connection a ratchet-flanged drum, a thumb-

Improved Perspectograph.
Anderson R Fiast, Selma, Ind.-The oblect of thls invention is to provide
elmple andeflletent mechantcal apparatue by whtch to take the a olmple and efflctent mechanical apparatus by whtch to take the polntis or
boundary lines of allvistble stationary objects accurately and transfer them to paper ona aketch board. Two perpendicular bara extend from a bed plcce. On one bar are two sleeves, the lower of which carrles a horizontal
arin, the turtber extremity of which is slotted to recelve the second perpendicula: bar. On the hortzontal arm sildesa vertical rod through which at lte upper end, passes another horizontal arm, which is attached to the
upper silding plecee on the bar frst mentoned. Plvoted to elther silding
 alngle example of the mode of using the tnstrument will suffle to show its
application. To operate by the use of the perpendicular scale and the hortzontal scale on the upper sliding plece, or, in other words, to take field notes by latitude and departure, using the silding scales, sllde the horizon-
tal scale to the top of the meridian, and move the scale of lattude (the tal scale to the top of the meridian, and move the scale of latitude (the
vertical rod on the lower horizontal arm) to the extreme right. An object in the foreground to the extreme left and nearest to the observer ts selected and regarded through the eye plate. Thercaleof latitude on the base is
next moved till it comes in direct line with the eye and the sald point. Then the horizontal scale at the top of the meridinn is loosened and moved down till it also comes in direct line from the eye to the object, and the
angle of nncldence or the latitude and departure of the sald polnt of the the plat board 1 s moved untll it cuts the degree of latitude of sald point in the object, and a dotter is insed to the angle of longitude or departure. By
a gentle pressure on the dotter the polnt le carried on the paper. In this way the operation ls carried on from object to object, and from polnt to polnt, untll the entire fild ts gone orer

## Improved Breast Plyn, Pad Y.

Frederick Cox, Brooklyn, N. Y.-This invention consists of infatable Indla ruboer breast pads so constrncted as to At over the breast and not
bear directly unon it. There is an annular cushton to bear around the base of the natural breast, and also a ventllating opentng trom the cavity. The device improves the form of the natural breasta by keeping them in the
natural shape, instead of flateulng and depressing them, as the common pads do; and they are more healthful, and retain thelr own proper shape

Willam J. Whlcox, Pateroon, N. J.-To Cooler.
the mity prime article o ard, it is necessary to stir or agitate it to a certaln extent whlle it is cool-
Ing atter having been rendered or melted by heat. To this end it 1 pro
posed to employ two revolving agitators, turning on thelr own axes, while at the same time rotacing around the axis of the tank. The agitators betng on oposite stdes of the axtso of the tank, thelr action sa rendered very
nearly equal throughout all parts of the latter. Four of sald agltators may be used as well, two belng in a line at right angles to the line of the other be used as well, two belng tn a line at right angle
two ; but generally two only will be sufflent.

## Improved Medicinal Capsule.

 of gelatiu consists of dipping a ball in the gelatin in a llquit state, of
such low temperature that a thin film will adhere to and polldify on the ball when lifted out. suffclently to form an elastic envelope. This is pulled off
the ball by the fingers, and placed in a mold, with the mouth upward, to be flled with the medtcine, after which it to sealed up. By fattening the ball to a certaln extent at the bottom, the accumulation of the material there-
at will make the sack round, forming an article which la much better in respect of appearance, and ls moreacceptable to the public than the old
elongated form.

Edmand C. Lipplncott, Edtontown, N. J., and Thomas R. C. Weat and cancers, and ls made of the jalce of sheep sorrel, turpentine, and murlatic acld. The whole mase is reduced by evaporation to a thick, pasty state,
when it is complete, and ready for use. It 18 applited to tae parts affected when it ts complete, and ready for use. It is applled to tae parts affected
in the ordinary way of using sucb remedies.

## Improved Iron Pavement.

John Vandercar, Brooklyn, assignor to Martin Van Buren, New York ctty -On the bottom of each section which is placed on the roadmay is a flange, displaced by the wear upon it. The sectlons, each with a from getting have a broad surface, and may be made to lock together so as to support each other. The intermediate chambers are filled with concrete, whit wil harden by exposure to the air, or may be flled with sand or gravel so
as to pive a good foothold for horses. The chambers are elght or ten Inches
in depth. A pavement thus formed of sectlons, it teclalmed, may be readily indepth. A pavement thus formed of sections, it ts clalmed, may be readil

Improved Kitchen Safe.
John B. Harrison and Joolah M. Harrison, St. Joseph. Mo.-This inven-
Hon Is an Improvement In kitchen safes of the clas in which sptee dough kneading boards, and flour sifters are arranged convepter for There are splce drawere, and a space provided with shelves, closed by a
hinged door. A bracket supporta a kneading roller and other artlcles. The hinged dough-isneading board may be adjusted at various angles to the front of the safe, thereby adapting it for conventeut use. The top of the
safe has a hinged lid which forms the cover of the conical hopper. The safe has a hinged lid which forms the cover of the concal hopper. Mas cleaning aplled to its apex in such a manner as to be readlly detached nrovided with a crank handle outside the safe. To control the descent of
four or meal tito the sifter, a sllde which forms the true bottom of the fiour or meal into the
hopper ts employed.

## Improved Locomotive Drawbridge.

tor as long as two abaces and two abutments of an ardinary bridge, mounted on wheels. The latter are so arranged and connected to gether that, the locomotive beling run on the briage and rested with each or
its driving wheels on two wheels of thebridge and set in motion, its wheels will actuate the wheels of the bridge, and cause it to cross on the abut.
ments. The bridge fe always If made longer, so as to prevent it from tilting down between them. A movable brifge is thus provided which itself crosses with the cars, and
leaves the spaces between the abutments free for the passage of veesels. leaves the spaces between the abutments free for the passage of vessels.
The invention is intended to take the place of the drawbridges now used The invention is intended to take the place of the drawbridges now used
for navigable streams, and is calculated to save much tlme, both to the

## Improved Gang Plow.

Alt is extended upward and curved formard, and to its Tex.-The king oted a lever, to which, at a little distancc from Its plvoted end, is plvoted the end of a connecting rod, the other end of which ts plvoted to the
tongue. By this constructlon, by moving the free end of the lever to the
rearward, ac as to lle along the curved upper part of the plows will be ratsed and locked away from the ground. When breaking up, or when bedding or rldgligg cotton or other land, or when dolng other plowing that requires a rigld plow beam, a brace is used, the forward end
of which is connected with the forward bolster, and its rear end to hooked into the hinged plow.

## Improved Car Coupling

George D. Splelman, Lancaster, Ohio.-This invention consists of a horl ontal bar, arranged transversely to the car in a horizontal slot in the end end engages the end of a strollar car on the drawhead of the other car to be coupled. The second bar slmflarly engages the end of the frst men-
tloned bar. The slots in the drawhead are shaped so that the coupting bars can be ratsed at the ends haring the hooks, and depressed at the other end oallow the hook ends to rise up over the other ends for couplling. The hook ends of the bars are provlded with chains to lift them up. The draw.
heads are also chambered out above and below the slots, for the coupling bars to recelve the ordinary coupling links, and pin holes are provided for the ordinary coupling plns, so that cars with this improved coupling can
be attached to others having the ordinary couplinge. The hook of one bar encounters the end of the other bar not provided with a hook, and rises
up on it because of its curved end, while, at the same time, the said end swings down In consequence of the hook at the other end rising on the end
of the other bar. The bars extend fito the slots far enough to recelve the pivots behind the ordinary coupling pins, and they are slotted suffictently for both of sald plvots to allow them to swing upward and down, as needed
or and durable, and will couple self actingly, as well on curves as onstralght Ines, and will uncouple in case the cars run offor shift.

## , mproved Bax Fastener.

8cott Welliugton, East Saginaw, Mich.-A stray of leather ls made of such a length as to allow the gathered mouth of the bag to be readily
passed through it, and its ends are riveted to a small metalltc plate. the side, edges, and center of the middle part of the plate, are formed lugs convected by two rods. To the outer rod are plvoted two polnted platea. of such a length that they cannot pass the inner rod, and whicharedesigned
to prese the fastening strap down agalnat the sald tnner red. A narrow strap has its middle part sewed to the middle part of the strap first men toned. The end parts of this strap are passed through staples artached to
the main strap, and thelr ends are passed throngh the spaces between the the matn strap, and their ends are passed throngh the spaces between the
luge and rods. In using the tie, it ts extended, and is passed over the gathe and rods. In uaing the tie, it is extended, and is passed over the bag to be fastened. The narrow $\begin{aligned} & \text { strap is then drawn } \\ & \text { gather }\end{aligned}$ tight, and is held securely by the tongues.

Improved Window Screen.
on, Flemington, N. J.-This Inve
John H. Thompson, Flemington, N. J. This invention relates to the construction of screens for windows, and consists in an ad fustable frame
by means of which the screen is adapted to windows of different olzes. The frame is made in two parte, the aldes belng constructed so that the parts lap past and silde on each other, so as to keep the edges of the screen
cloth tightiy fnclosed when the frame ts extended. Strips are Inclosed by the ofldes, forming a part thereof, to which the screen cloth le attached. Each plece constists of two parts, which are fastened together with the
screen cloth between them, the end pleces only belng grooved. The depth of the groqves in the eads of the frame determines che extent 10 which the frame may be extended without leaving an opening. The screen cloth
preferably made of wire, but ordinary mosquito netting may be used. Improved Bridge.
Richard Long, stelapolis, Iowa.-This invention relates to improvement raliroad and ot her bridges of shorter spans, with wooden arches, and
onsiste in the use of stirrups suspended from the arches which carry the coss beams, tozether with longitudinal stay rods, which connect the ends

Improved Reversing Valve for Steam Engines.
T. Brownell, Elmira, N . Y. - Steam tion admitted through
Yhilip $T$. Brownell, Elmira, N. Y.-Steam Is admitted through an aper-
ture, in a cup which fits on the recelving chamber. Plpes coanected with thre, in a cup which fits on the receiving chamber. Pipes connected with
this chamber convey the steam to the several cyllinders. The valve recelves a rotating motion from the crank shaft, and the latter is supported by a end of the shaft ts a cross bar, with a toe at the end, which takes hold of lugs on the top of the valve for revolving the same. The valve is a hollow
shell, haveng partitlons and a hollow tubularcenter. The cylnder slldes in the center, and has a horizontal partition which separates the live from the exhaust steam. The center has two long slot ports, and the ollding
cylinder has two corresponding therewith in size and position. The cylinder to given a sllpht collding ing therewhin aize and postion. The cylin toregisterfor admitting steam and exhausting it. The sllding cylinder revoives with the valve. When one pair of ports are admitting steam, the
opposite pair areexhasatingit; and this action is instantly reversed oy a
silght movement of the alding crilnder.

Improved Folding Batchel or Box.
Lorenzo M. Glllet, New York clty.-Thls invention or for travelers that can be folded up in a small, compact package whe empty. The bottom, aldes, ends and top, may be cut in one plece from separately with jotnts to bend at the angles of the box for adjusting it or setting it up for use. The sides and top fold agalnat the edges of the ends and profect a little beyond them, so tisst staples on said ends will project
through slots to fasten the ends and stdes together by plas through them hrough slots to fasten the ends and sides together by plns through them,
or any other equivalent arrangement. The top will overlap one of the or any other equivalent arrangement. The top will overlap one of the
aldes and form a lld for opening and closing the box or satchel. Any ordt nary trunk or satchel handle may be attached, or a shawl strap may be buckled around the box for carrying tt .

## Improved Combined Ash Box and sifter.

ment of a alereand close ash box in a large inclosing box, in the arrang may be conventently removed, and also ashes may be sifted without
allowing any portlon to escape. The wood and coal are supplifed to cham ers by rasporthon to escape. The wood and coal are supplted to cham disturbing sald cover by turning downa door which ts hinged at the fron th less than the depth of the box. The sleve 18 worked by detachable handle, to be introduced through the holes in the case. Afte
the ashes have been sifted out. the sleve can be taken out wheu the handle has been detached. and emptled Into the coal chamber, and the ash box ca be withdrawa from time to time to carry the ashes away.
Improved Ditching Machine.
John M. Dunn and Murdoch M. Dunn. Erin, Mise,-This Invention has for Its object to improve the construction of the machine for which letters
patent No. 119,334 were granted to John M. Dunn. The frame may ve blid to adjust the machine laterally to work in a ny desired part of the excava into worklag pisition, or swung back to ralse the machine for paselng from place to place. The device may be readily secured in place when adjusted,
and is ralsed or lowered by sultable mechanimm connected with the wheels. The plow may also be ralsed and lowared andadjusted. A whe made with a wide tread projects upon one side of its body. In the angle radlally, gnd which serve as buckets to carrv up the soll thrown tnto the cavity of the wheel by the plow. A guard plate keeps the earth from falling from the ascending buckets. As the buckets reach the upper part of
the wheel, the sollfalls from them into an Inellned spoul attached to th rame, where it is recelved upon the wings of a wheel, by which it is pro jected upward aud outward to fall upon the ground at the side of th from the wide wheel by a shteld againgt which it strikes. The winged whee irom the wide wheel by a shield againgt which it strikes. The winge
is arranged that it may be driven by the advance of the machine.

Improved Pantaloons.
, New York clty.-The obje
Willam O. Linthicum, New York city.-The object of this invention o render pantaloons more elastic, and the fastentne more durable tha they have hitherto bepn; and it conslste in an adjustable clastic atrap
attached to the walstband or top of the pantaloons behind, and in a plate fastening in front. By means of thils elastic strap, the pants are made selfadjusting to
to the weare
Improved Heating Stove.
Edwin $\Lambda$. Osborne, Charlotte, N. C.-The ash
than at the front part, to prevent the ashea rolling forward, and there to celving the plpe throuph which the alr 18 admitted to support combustio in the stove. The supply of alr is regulated by a damper. Whtch has an elevation, to prevent the falling of ashes Into its vent, and a thin narrow
handle, which extends from the inside of the ash pit through a narrow opening in the front. This is all cast in one plece. The plpe extends front of the stove, and at the lower end below the floor tis a wicker work of wire, with a tin or sheet lion bottom, as a spark arrester. The covering for the ash pit tis common movable cover. The object of the invention Is to obtain the supply of alr outside the room to be heated, thus prevent-
ing currente, preserving the uniformity of the temperature, and requiring ing currental
less fuel.
Improved Middlings Purifier.
An inclined frame ts placed within the man frame, and ts made a ittte shorter than the latter, so that it maj have a longitudinal movement. I
Is actuated bv an eccentric in one or both directions, supporting spring alwayb bringing it back promptly when released. The franie to which the bolt cloth ts attached is suspended within the vibrating frame by flexible straps. By this arrangement each movement gives a sudden Jar to the
cloth frame, which keeps the cloth clean without the ues of bruahes. The cloth frame, which keeps the cloth clean without the use of brushes. The
middllngs are fed to the cloth frame by a roller or other suitable feed from middilings are fed to the cloth frame by a roller or other suitable feed from
a hopper, which ts placed above the upper endor the frame. Below the a hopper, which is placed above the upper endof the frame. Below the
discharge opening of the l.opper a spout leads into an expanalon chamber, from the lower part of which a short spout leads out through the rea end of the box. Which is provided with a trap door. From the expansiun
chamberan opening is formed Into the fan chamber. The alris so directed that it passes up through as well as alngg above the bolt cloth, whlle a
third current goes through the middlings as they fall from the hopper By this construction thealr drawn through the machine by the fan carrles By this construction the air drawn through the machine by the fan carrles
the light Impurtles with it. Any of the middilings that may pass through of when desired.
Isaac M. Fork, Belton, Tex.-This Invention her
Isaac M. Fork, Belton, Tex.-This invention has for its object to fu; alsh stifest and most sticky pralrie soll, and will thus work without clogging where ordinary plows cannot work. The invention consitate in an im.
proved plow nlate, formed of a single plece of imon or steel, with its point proved plow plate, formed of a olngle plece of tron or steel, with its point
in theform of an tsosceles triangle with a rearwardly finclined land olde in the form of an leosceles triangle with a rearwardy inclined land elde
fiange. The angular line between the land side fange and the mold board nange. The angular line between the land side fange and the mold board
1 concared apon the arc of a circle about six feet tin dlameter. The mold board is convesed, so that a line drawn from its rear corner to the point of intersection of the sald angular line and the point may be apon the arc John X. Miller, Chester, Pa.-Thts invention co Indow sash at both side with triangur and springs are placed. with forward projecting rollers attached thereto These rollers bear against one gulde strip of the window frame, so as to
hold the sash by its friction on the otherguide strip in any position in which it is placed. For locking the sash in closed postitior, so as to pre parts of the outer culde strips, which catches engage a corresponding re
cess of the sash, while the necessary play of the sash for cngaging and d1sengaging it from the catches is obtained by receeses at both aldes.

Improved Gear Bntton for Flour Packers.
Crevellng, Akron, o.-The object of th1s fnvention ts to
Lewis Crevelling, Akron, $O$. The object of this invention is. to supply
in the place of the button at present in use, one which controis more ex actly the throwing out of gear of the machine, and packing the barrel and sacks more evenly as to welght. This invention consists in the application of a $T$ rall to the upright frame plece of the platform on which the barrels and sacks are placed, with a button slotted to correspond, which
may be setnrmly thereon by means of a thumb screw in the position remay be setirmly thereon by means of a thumb screw in the position re
quired to pack the barrels or sacks, and then throw the machine out o gear.
Jacob F Smproved Corn Hnsking Implement.
furnish to form, Manteno, Mine object or this invention is $t$ be, to be used in cold weather with or without mittens or gloves, and be adapted fordifierent sizes of hands. The invention consists in making
the handle plates sllding in each other, and fastenting them rigldy, by a set

