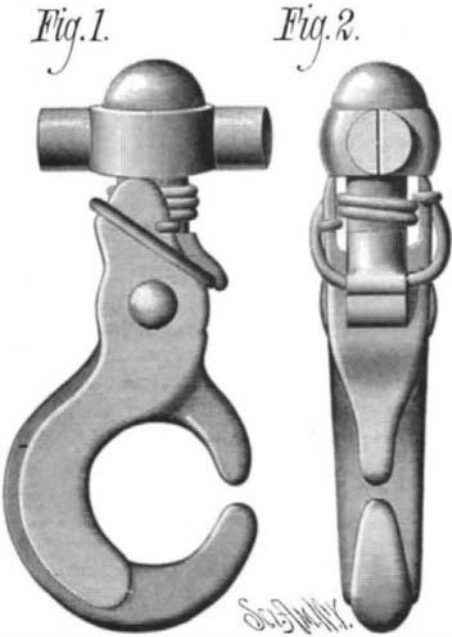


AUTOMATIC DETACHING AND LOCK HOOK.

The engraving shows an automatic detaching and lock hook lately patented by Mr. George B. Whiting, of Washington, D. C. This hook may be applied to ropes, chains, rings, and shackles, in connection with boat davits and cranes, and has many other useful applications. It can be readily and easily attached, and, if required, locked in position, or as promptly and quickly detached from its connection.

Fig. 1 is a side elevation, and Fig. 2 is a front elevation of the device.

The shank of the hook has a swiveled connection for attaching it to the block or shackle with which it is to be used. A shell, pivoted to the shank of the hook and embracing the back of the hook, has a point projecting toward and nearly touching the point of the hook. The sides of the shell extend upward and are engaged by the ends of a spring wound around the shank. This spring tends to



WHITING'S DETACHING AND LOCK HOOK.

throw the shell forward toward the point of the hook, but is prevented from doing so by a link that is pivoted to the front of the hook shank. When the shell is unlocked by slipping the free end of the link downward, it is forced forward against the rope, ring, or shackle, detaching it from the hook.

IMPROVED COTTON STALK CUTTER AND PULLER.

We give an engraving of an improved machine for cutting and pulling cotton stalks in order to remove them from the land in preparing it for cultivation. The removal of cotton stalks is one of the most perplexing questions the planter has to deal with, it being expensive to remove them altogether and difficult to dispose of them by any other means.

The machine shown in the engraving is designed to cut the stalks into such small pieces that they will not interfere with tillage and to pull the roots.

The machine consists of two inclined rollers, A B, grooved longitudinally and provided with knives capable of cutting the stalks. These rollers receive their motion from the axles of the drive wheels, and are provided with two large toothed wheels, D, at their lower ends. The knives, b, of the roller, B, fit into slots, a, of the roller, A, as shown in the sectional view, Fig. 2.

The machine is provided with guides, C, which gather in the stalks as the machine is drawn forward. The rear end of the machine is supported on caster wheels, and entire cutting apparatus is capable of being raised from the ground by means of the lever handle near the driver's seat.

As the machine is drawn forward the rollers, A B, in revolving cut off the tops of the stalks to within a short distance of the ground, when the stalks are drawn between the heavy teeth of the wheels, D, and are pulled from the ground. This machine cuts the stalks up so that they do not interfere with the cultivation of the land, and leaves the short pieces of stalk to enrich the soil.

Further information in regard to this useful invention may be obtained by addressing the inventor, Mr. Wm. B. Richardson, in care of C. and A. Freight Office, Kansas City, Mo.

Chicken Hatching by Electricity.

The chicken hatching machine in the Electrical Exhibition deserves celebration as well as other electrical contrivances. It is an ordinary egg hatching machine, in which the heat is regulated by a thermometer, the surface of the

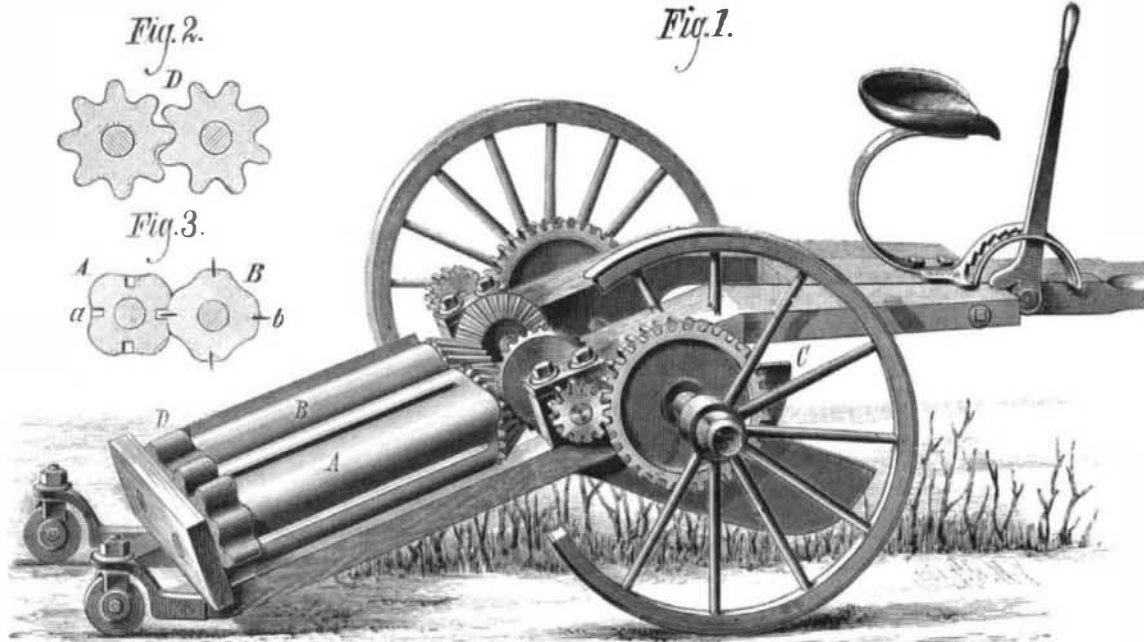
mercury in which, as it rises or falls, acts by electric wires and a magnet upon a ventilator, which opens as soon as the heat rises to 104 degrees, and shuts when it begins to fall too low. It has been observed that machine-hatched chickens suffer from lonesomeness, and do not eat so well as those who hear a mother's constant voice; and so the ingenious proprietor of this machine is now constructing a telephone which will convey to his henless chicks, scattered in different cages about a meadow, the clucking of a central hen. It is a benevolent idea; and if he would go a little further, and discover a way of "laying on" maternal care to the poor featherless chicks that are so often seen abandoned in the stationary machines called perambulators, yet greater would be his boast that he has not lived in vain.—*St. James's Gazette.*

American Shoemaking Machinery at the Frankfort Leather Fair.

A notable feature of the International Shoe and Leather Exhibition at Frankfort-on-the-Main, recently closed, was a complete American shoe factory, organized by C. S. Larrabee & Co., of Mainz. About a hundred machines were shown in operation, exhibiting fully the progress which our inventors are making in shoe machinery and in the manufacture of shoes by machinery. The principal machines exhibited are protected by patents, and included Keats' sole sewers, Larrabee heelers, the Jamieson crimper, Busell trimmer, union edge setter, etc. The official list of awards kindly forwarded to us by Mr. Larrabee shows that he received seven gold medals, six silver medals, and eleven bronze medals for himself and the builders of the various machines shown in the exhibition factory, and for manufacturers using them.

Acorn-Storing Birds.

At a late meeting of the California Academy of Sciences, a paper was read by Mr. R. E. C. Stearns, on the acorn-storing habits of the California woodpecker. In Napa County he had examined a fallen yellow pine, the bark of which was full of acorn holes. Its length was 175 feet, and the diameter of its butt was five feet ten inches, and at ninety feet three feet eight inches. Above the ninety foot line the woodpecker holes were comparatively few; neither were there any in the first ten feet of the trunk from the ground. A piece of the bark, twelve by twelve inches, showed sixty holes. Taking an average of thirty-six holes to the square foot, it gave 41,040 acorn holes in the bark of this one tree. The holes were drilled to receive acorns of different sizes, for the birds are exact workmen, and each acorn is nicely fitted into its special cavity. Woodpeckers reject the cups and store the acorns without them. In Knight's Valley he observed woodpecker holes in a large spruce tree, and he was informed that they also bore into the bark of certain oaks to a limited extent. The acorns were generally considered as laid up for a winter supply of food; but while in this climate no such provision was necessary, it was also very improbable that woodpeckers would feed on hard nuts or seeds of any kind. The more rational explanation is that they are preserved for the sake of the grubs they so frequently contain, which being very small



RICHARDSON'S COTTON STALK CUTTER AND PULLER.

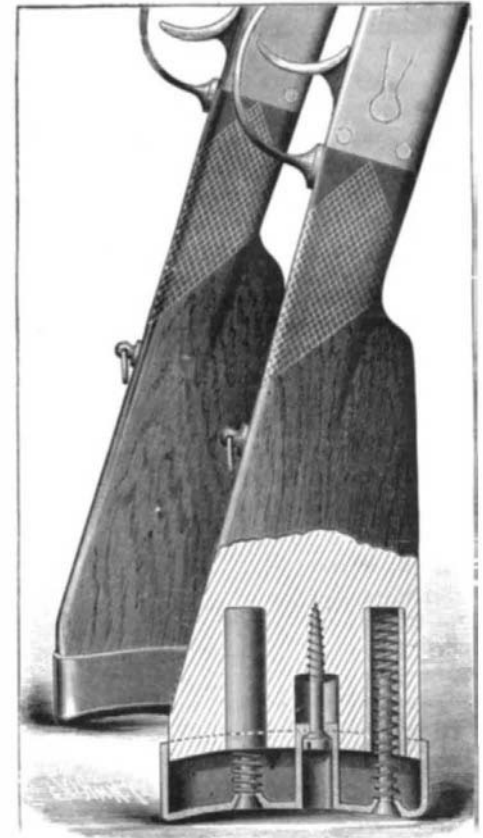
when the acorn falls, grow until they eat out the whole interior, when they become a welcome delicacy for the bird.

Mr. Lightner, a member of the Academy, had observed woodpeckers engaged in drilling holes in the bark, when a bluejay was seen to fly close up to one and inspect the size of the hole. Some active chipping then ensued, when the bluejay flew away, but soon returned with a green acorn, without the cup, in his beak. This he offered to the woodpecker, who took it with his beak, and set it into the hole, and drove it home with a few taps, where it remained. This process was continually repeated. Mr. Lightner desired to know what were the special benefits derived by this mutual service conducted between a seed-eating and an insect-eat-

ing bird. Mr. Stearns said that great numbers of untouched acorns remain in the spring, which have developed no worms suitable as food for the woodpecker, but which supply nutriment to bluejays and squirrels. Thus a community of interest was manifest, explaining their joint labors.

IMPROVED CUSHIONED GUN STOCK.

The engraving represents an adjustable and yielding gun stock lately patented by Mr. Hiram W. White, of Yankton,



WHITE'S CUSHIONED GUN STOCK.

Dakota Territory. The gun stock is made in the usual form, except at the butt, where opposite sides are made parallel for a short distance to receive the yielding butt, which caps over it, and is capable of sliding on or off the butt within prescribed limits.

The butt has an inwardly projecting thimble or socket near the middle for receiving a long screw that extends into the wood of the stock and serves to adjust the butt and to limit its outward movement.

From the butt two parallel guide pins project into guide holes in the stock, and are surrounded by spiral springs, which tend to press the butt outward as far as the adjustment of the screw will permit.

This construction renders the butt of the gun elastic, so that the shock of the recoil will be modified so as to be scarcely noticeable. The degree of elasticity can be adjusted by turning the screw in or out, so as to suit the strength of the gunner or weight of the gun, and the strength of the charges fired from the gun.

The length of the stock may be varied by turning the screw in or out to adapt the length of the stock to the gunner's arm.

Another advantage in this improved stock is that there is no tendency to raise or tilt the muzzle, and thus detract from the accuracy of the aim at the instant of firing.

This invention, while it adds very slightly to the expense of a gun, greatly increases the facility and comfort in using it. The engraving shows a sectional view and also an external view.

Further information in regard to this invention may be obtained by addressing the inventor as above.

Salmon from the Arctic Regions.

The steam yacht Diana, lately arrived in London, has solved an interesting question with regard to the importation of salmon. The vessel belongs to the Hudson's Bay Company, and has been fitted up by the Bell-Coleman Mechanical Refrigeration Company, of Glasgow, with one of their patent dry air refrigerators, designed by Mr. I. I. Coleman. The hold is made air-tight, is lined with a non-conducting lining, and contains about 35 tons weight of fish, which have been kept at a temperature of about 20° or 22° Fah. throughout

the voyage from the Hudson's Bay Settlements. The fish were caught at the rate of about three tons daily, and placed in the cold air chamber immediately as they arrived alongside the ship. On opening the hold in London the salmon were found in as good condition as when taken out of the water. The flesh is declared quite firm and of excellent color.

THE GREAT EXHIBITION AT ATLANTA GA.

The Atlanta Exhibition opened, as already noted, with hopeful prospects, both as to popular success and national utility. These prospects have improved with each day's developments, and the indications now are that the commercial and industrial results of the fair will as far transcend the anticipations of the projectors of it as the show itself has exceeded in magnitude and variety their original intentions.

The first plan, as proposed by the Hon. Edward Atkinson, of Boston, was to hold a modest cotton fair somewhere in the South, preference being expressed for Atlanta. The energetic proprietors of the *Textile Record* took up the project in earnest, and succeeded in enlisting the good will and active co-operation of the leading citizens of Atlanta. The Exhibition Company was organized about a year ago, and under the energetic direction of Mr. H. I. Kimball, of Atlanta, subscriptions to the amount of \$200,000 were promptly secured, of which New York City contributed a fifth part. The construction of the buildings deemed necessary for the exhibition was begun last spring.

The Exhibition Restaurant (100 x 53 feet, two stories) contains saloon, dining room, serving room, and ladies' parlor and retiring room, gentlemen's retiring room, store rooms, kitchen, etc.

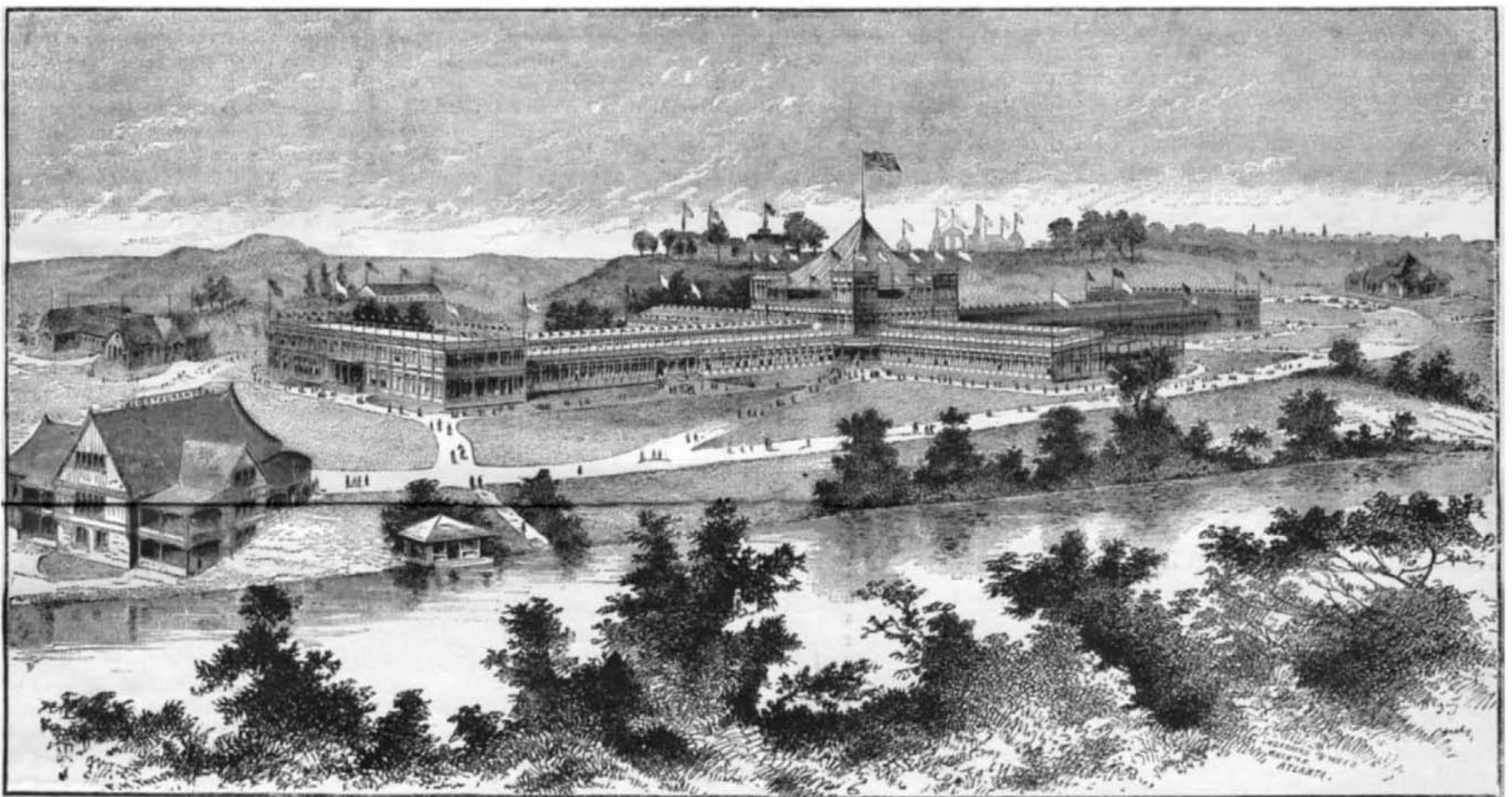
A number of annexes for special purposes have been erected in addition to the large buildings for the general purposes of the exhibition.

Inside the grounds and in the fields just outside representative Southern crops have been planted, including a dozen varieties of cotton, sugar cane, sorghum, rice, hemp, potatoes, peanuts, etc., etc. These growing crops show the visitor not only the characteristics of Southern agriculture, but also its needs and the conditions which will have to be satisfied by inventors of time-saving, labor-saving, and crop-saving implements, machinery, and processes for use in the South. The exhibition of cotton machinery is very large, and embraces substantially everything in use by planters and manufacturers. The first committee of the National Cotton Manufacturers' Association pronounce this part of the exhibition the best and most abundant ever before brought together in this country or elsewhere. The evidence of the natural resources of the South in agriculture, in commerce, in minerals, and in timber presented in the annexed buildings, could not be equaled, they say, by any other equal area of the earth's surface; and in the use to which these resources will shortly be applied, they find the promise of great commercial advantage to the North as well as to the South. They concur unanimously in the judgment that greater promise of improvement in many direc-

tion, to which the horse or other power is applied, passing round a wheel on the windlass to actuate the latter. This longer arm of the power lever is elevated by a separate rope and windlass and adjustable crane, after the load has been raised and detached.

Mr. Samuel Whinery, of Wheeler's Station, Ala., has patented an improved balanced slide valve. This invention consists of a slide valve composed of twin valves, and a frame fitted with flexible diaphragms in interposed relation with the valves and connecting the latter with the frame, in combination with a steam chamber having steam and exhaust ports in its opposite sides. The diaphragms, which project at the ends of the valves, form a chamber between them which is in communication with the exhaust ports of the valves. This construction provides for a pressure on the diaphragms, collapsing the chamber between them, and nearly balances the pressure of the valves outward, also one exhaust pipe serves for both sides of the steam chest.

Mr. Robert L. Stevens, of Albany, Oregon, has patented a novel means for elevating and depressing propellers. The invention has for its object the raising and lowering of steam-boat propellers to adapt them to different draughts of water, according to the load on the vessel. It is applicable both to side wheel and stern propellers, and consists in supporting the propeller and its driving engine in such manner that they can be raised or lowered by screw shafts actuated by mechanism driven by said engine, or by a separate engine. By simultaneously raising or lowering the driving engine or engines and paddle wheels or other propeller the proper working of



THE GREAT EXHIBITION AT ATLANTA GA.

The site selected for the fair was Oglethorpe Park, a space of fifty acres just outside the city. The principal building was designed for a model cotton mill; and the general plan of the exhibition buildings was thought to be, if anything, over-ambitious. But the demands for space came in so rapidly that successive annexes were erected, ultimately quadrupling the exhibition space at first contemplated; and yet the demand has exceeded the twenty acres of exhibition space provided.

The original "Main" Building is a handsome structure almost entirely of glass. It is 720 x 400 feet, well lighted and ventilated. It is supplied with abundant steam power and with eight lines of shafting, arranged for the operation of every description of machinery. Its magnificent aisles afford opportunity for a grand and artistic display.

The Art and Industrial Pavilion (310 x 55 feet), open to the roof, 50 feet high, with capacious galleries, is provided for the display of fine arts and manufactured goods to the very best advantage.

The Department of Minerals and Woods (300 x 100 feet) is an elegant building, provided for the especial display of the collective exhibits of the natural products of mines, fields, and forests, which constitute one of the finest displays of the kind ever presented.

The Judges' Hall (88 x 112 feet) includes, besides the commodious offices, committee rooms, etc., a capacious hall, seating 2,000, for the accommodation of the various assemblies attending the lectures, business meetings, etc., held during the exhibition.

The Department of Public Comfort contains, besides the offices of the department, convenient offices for the telegraph, telephone, and exhibition messengers, stands for fruit, cigars, newspapers, etc.; also barber shop, check room for parcels, ladies' parlors and retiring rooms, gentlemen's parlors and retiring rooms, etc.

tions, but especially in the handling of cotton, has emanated from this exhibition than from any ever held before. The committee represented more than \$100,000,000 of capital, over 1,000,000 spindles, and nearly 25,000 looms.

ENGINEERING INVENTIONS.

Mr. John W. Hayes, of Fort Wayne, Ind., has patented an improved steam engine valve. This invention relates to that class of engine valves that are known as "rotary valves;" and it consists of a cylindrical hollow valve open at top and bottom and closed at both ends, and having concave sides provided with annular and longitudinal packing strips or bands, and devices for giving it an oscillating and slightly endwise motion for the purpose of making the wear upon the valve and its seat and interior of the valve chest more even. The concave sides of the valve form exhaust cavities, and the valve seat is supported on studs, whereby an exhaust passage is established beneath said seat. The valve, being open both above and below for the admission of steam, is approximately balanced, and its general construction is such as to insure great durability.

Mr. William A. Stoddard, of Dallas, Oregon, has patented an improved stump extractor, which possesses many conveniences and is capable of great power. In this machine the main frame, which rests upon the ground when the machine is at work, has combined with it front wheels supported on a swinging axle that is journaled in hand levers pivoted to the frame, and a rear swiveling wheel carried by a hinged frame which is attached by connecting rods to the hand levers. By this combination the main frame with its working parts may be raised from the ground and the machine be readily moved over the surface thereof. The main power lever, which carries the lifting or stump-extracting chain at one end, is operated by a rope and windlass arranged to depress the other end or longer arm of said lever, a draw-

the engines is not interfered with, and the propeller may be positioned for most effective action, or be raised when navigating shallow water.

Mr. William Sneddon, of Burrton, Kan., has patented an improvement in engine governors. This invention is applicable to all governors employing fly-balls, and its object is to secure more perfect uniformity in the speed of the engine. The invention consists in an upwardly-inclining or curved lever applied to exert a lifting action on the valve stem of the governor, and formed with a groove in which a ball or weight is arranged to run loosely, said weight moving nearer to the lever fulcrum as the speed decreases, and *vice versa*. By this means a tension, increasing and decreasing as required, is kept on the valve stem, restraining any sudden movement of the latter, and the action of the governor is greatly improved.

A New Species of Horse.

The *Annals and Magazine of Natural History* for July contains a translation of a Russian paper, in which M. Poliakov brings forward a mass of evidence in proof of the existence of a hitherto unknown species of horse, not far from Zaisan, in Central Asia. The animal appears to resemble a small domestic horse, of a dun color; its head is large in proportion to the size of the animal; and the root of its tail is destitute of long hairs for some distance. M. Poliakov names his supposed new species *Equus Przewalskii*, in honor of the traveler who brought the skin to Russia. He regards it as a true horse, and remarks that "if it were possible to prove that culture influenced the growth of the tail, and that this became more hairy, and the mane longer, under altered conditions of life," it might be affirmed that "it was indeed the animal whose ancestors were reclaimed by man in the stone period, the so-called domestic horse of our day."