

**MECHANICAL INVENTIONS.**

Mr. Thomas G. Glover, Jr., of Bedford, Ind., has patented a light-running hand car that may be easily handled. It is designed for the use of section men and other employes of railroads.

Mr. George W. Dudley, of Waynesborough, Va., has patented a novel saw filing and setting machine, designed especially for saws having a straight row of teeth, and it comprises novel features which cannot be clearly described without engravings.

Mr. Charles S. Peach, of North Adams, Mass., has patented an improvement in ring spinning frames, the object of the invention being to prevent the threads from throwing out and interfering with each other, and to equalize the tension and draught on the thread, whereby the yarn will be wound on the bobbin equally hard and close at top and bottom.

Mr. Heinrich Seck, of Frankfort-on-the-Main, Germany, has patented a preparatory bolting machine so combined with a fine dressing machine that it serves for separating the husks, bran, and coarser particles from the meal, and for sorting the meal itself into different degrees of fineness at one operation.

Mr. Cyrus S. Stevens, of Lowell, Mass., has patented a machine for filing straight and circular saws. The invention consists in certain features of construction and combination for obtaining the necessary movements of the files and the requisite adjustments of the saws.

Mr. Alanson Cary, of New York city, has patented a machine for manufacturing metallic barbed ribbon for the wire used for fences so as to give to such a wire a barbed edge. The invention consists in a machine combining a reciprocating head carrying the cutters, a feed bed, and die plate, feeding rollers, and an intermittent feed motion, whereby the ribbon is fed forward beneath the cutters, and the operation performed rapidly without waste of material.

Messrs. John E. Best and William E. Higgins, of Arlington Heights, Ill., have patented an improved thill coupling jack for compressing the rubber in a thill coupling to allow the thill eye or coupling bolt to be readily inserted.

An improvement in machines for depositing fine and powdered substances in uniform quantities in packages, has been patented by Mr. James McCrodden, of New York city. The machines are so constructed that they may be readily adjusted for forming larger or smaller packages. They are convenient in operation, filling the packages quickly, and allowing them to be readily inserted and removed.

Mr. Winfield S. Reeve, of Riceville, Iowa, has patented an improvement in trimming shears for blacksmiths' use. The invention consists in connecting the cam lever with the movable jaw by a slotted plate, so that the operator may stand behind and over his work, thus being enabled to cut to a line.

**NEW STEAM BOILER.**

Our engraving represents an improved compound steam boiler patented by Mr. Robert R. Hind, of Kohla, Hawaii, Hawaiian Islands. It is designed especially for utilizing cane trash or bagasse, or any other light fuel. These boilers have been largely introduced in the Hawaiian Islands, and have earned a reputation for being very economical steam generators, and exceedingly well adapted to any fuel supplying a long flame.

The boiler is composed of a single flue or Cornish boiler, A, and a multitubular boiler, B, placed end to end, leaving a space, C, between them. These boilers are connected together at the top by a steam drum, D, and at the bottom by circulating pipes, E.

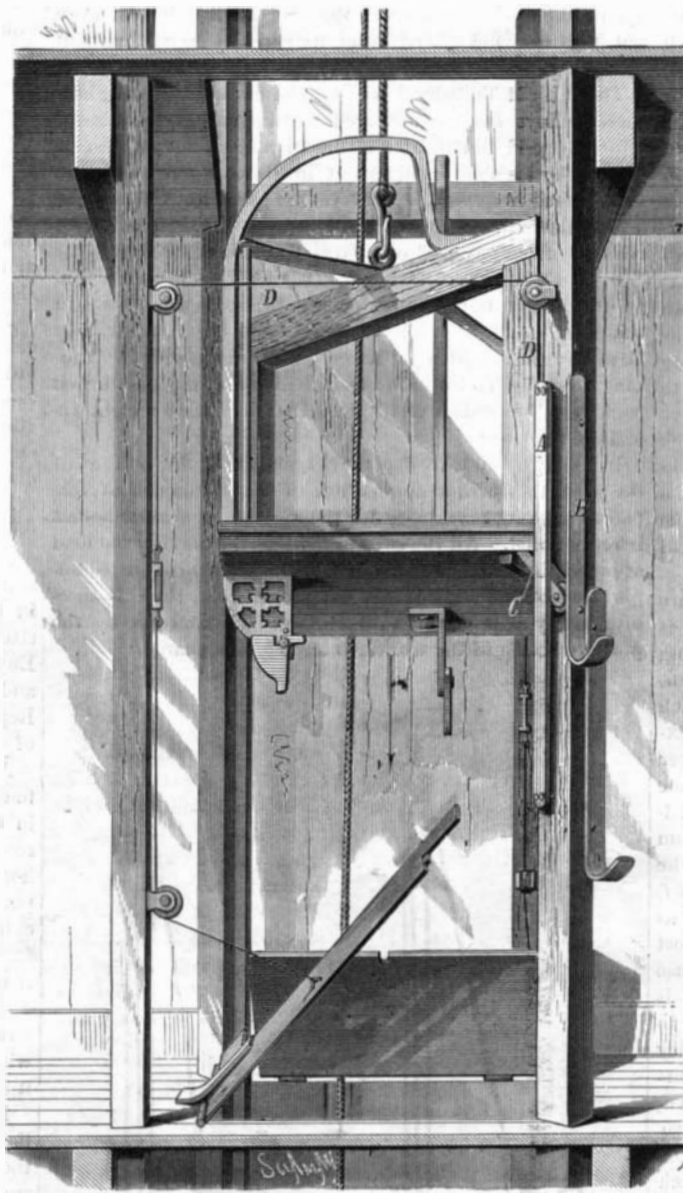
The boiler, A, is set directly over the furnace with its forward end over the grate. The products of combustion and flame follow the direction indicated by the arrows, passing through the single flue of the boiler, A, across the space, C, and through the tubes of the boiler, B, to the chimney. A portion of the heated gas and flame is made to circulate under the boiler, B, before passing to the chimney. This boiler is highly spoken of by owners of sugar

plantations in the Hawaiian Islands, and we have no doubt it might be profitably employed in saw mills, planing mills, and in manufactories relying on waste and on light fuel for generating steam.

The inventor would be pleased to correspond with any one desiring further information in relation to this boiler.

**IMPROVEMENT IN HATCHWAYS.**

The annexed engraving shows an improved device for opening and closing hatchway covers or doors as the elevator approaches, passes through, and recedes from the floor

**IMPROVED HATCHWAY.**

either upon its ascent or descent. The engraving shows the elevator descending, and the doors being opened preparatory to the descent of the elevator through the floor. When the elevator ascends, the bows attached to the top open the covers, and they close gently by their own gravity after the elevator passes, the trip dogs employed in opening the doors acting as checks or counter weights; but when the elevator descends a more difficult problem is encountered, and it is this that the invention shown in the engraving is more particularly intended to meet.

Upon one of the guide posts there are two guides, A B, for receiving vertically sliding trip-dogs, C, to which are attached ropes, D, connected with the covers, one being attached to each cover and running over pulleys, so that as

the dogs are engaged by the elevator in its descent the covers will be raised. There are two inclined guides, projecting from the bottom of the elevator to insure the complete opening of the covers.

The trip dogs, C, have sufficient weight to nearly counterbalance the covers, so that but little force is required to operate the mechanism. As the elevator descends the trip dogs are pushed down until they are released at the lower ends of the guides, when the covers will be open and will be kept open by the elevator until it passes that floor, when they will follow the rounded bows at the top of the elevator and close automatically. The inventor informs us that architects and mechanics who have examined the invention pronounce it perfectly practicable. It may be placed upon any elevator without making any alterations in the hatchway.

The expense of the application of this device is very light. It makes no difference which way the doors are made to open, this mechanism will operate them. The frames in which the dogs work can be placed both on one of the elevator guide posts, one on each guide post, or on separate posts built especially for them. The working attachments are alike in size for all hatchways, thus making the cost very much less than where it is necessary to make the working parts of different sizes according to the size of the elevator.

The small wire cables or chains used in operating the covers is provided with a turn buckle to take up the slack in case they stretch. The whole contrivance is so simple that the engineer in charge of the elevator can always keep everything in perfect working order.

Hooks can be arranged to fasten the doors up, if necessary. This will not interfere in the least with the working of the elevator car. This is an advantage over other automatic hatch covers, because in some cases, when a door is broken or in any way out of order, the elevator cannot be worked until the damage is repaired.

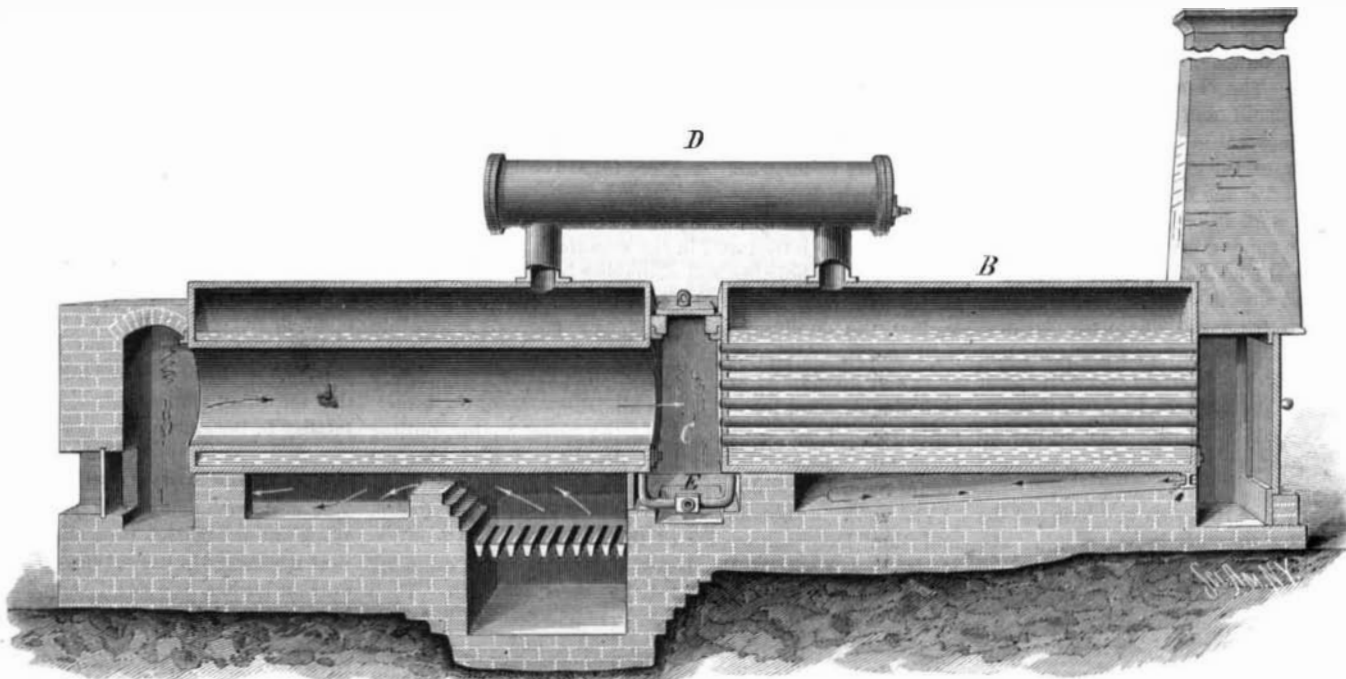
For further particulars address the inventor and owner, W. H. K., 75 University Place, New York city.

**Elevators.**

We have in New York city several thousand elevators; they are used in almost every large and prominent establishment. In the post office building there are fourteen, and it is only a few weeks since that the principal one of these, as far as the knowledge of the public goes, and the one most used by the outside crowd, suddenly fell to pieces. It was a hydraulic elevator, the car being held upon a column of water. This was considered the best and safest of all, and yet the few persons in it at the time of the mishap barely escaped with their lives. Scarcely a month has elapsed since the accident at Fall River, by which Mr. Sevey was killed, and Mr. Crowley died since of his injuries. Since that time there have been eleven elevator accidents, and some one has been injured each time. What is still more alarming, all the elevators except two had safety appliances, and yet in every instance the car or cage fell to the bottom of the well.

Our city is famous for its cloud-seeking buildings. Ground is high, and story after story is added to make room for immense stocks of goods. Elevators duplicated and quadrupled afford easy access to the upper floors. This mode of conveyance is absolutely necessary, and cannot be dispensed with until some better method is discovered. It is idle to speak of safety appliances. We have had too many such catch-penny contrivances. We had a safety fire ladder some months ago by which two noble firemen were killed at the first experimental test in this city. What we need

is something that will prove safe under all circumstances. What that will be we do not know, but our merchants who build warehouses a hundred feet high should interest themselves in providing for the absolute safety of the tens of thousands who daily use their elevators. Secretary Sherman, while in town last week, had a conversation with Postmaster James, when the latter urged the necessity of having more and better elevators in the post office building. The Secretary expressed himself heartily in favor of the pro-

**HIND'S COMPOUND STEAM BOILER.**

posed improvement, and advised the postmaster to go before the Appropriation Committee at Washington with the Supervising Architect and present the need of an appropriation for this purpose.

The improvement is needed, and we hope the new elevators will be such as not to endanger human life. We have had enough of these man-traps.—*The Dry Goods Bulletin*.

[There is certainly ingenuity enough among our inventors to contrive some appliance which will render elevators absolutely safe. Who will do it?—Eds.]

**SOUTH AFRICAN ANTELOPES.**

The sassaby, or bastard hartebeest, as it is sometimes called, is by no means an uncommon animal, although some few years ago it was only known through the means of a mutilated skin.

The general color of this animal is reddish-brown, the outer sides of the limbs being dark, and a blackish-brown stripe passing down the middle of the face. Sometimes the body is washed with a bluish-gray. It lives in small herds of six or ten, in the flat districts near the tropic of Capricorn, and is a most welcome sight to the wearied hunter when perishing with thirst. There are many antelopes which are almost independent of water, and can quench their thirst by means of the moist roots and bulbs on which they feed. But the sassaby is a thirsty animal, and needs to drink daily, so that whenever the hunter sees one of these animals he knows that water is at no great distance. It is rather persecuted by the hunters, as its flesh is in great

being thus superior to the common stag in size. The horns are black in color, and are furnished with a series of ten or twelve half-rings in their frontal surfaces. Their length is about fourteen or fifteen inches.

The bless-bok (*Damalis albifrons*) has sometimes been confounded with the bonte-bok; there is, however, a marked distinction in the color of the coat. The name, bless-bok, or blaze-buck, is given to this animal on account of the "blaze" of white upon the face, and is equally applicable to the bonte-bok.

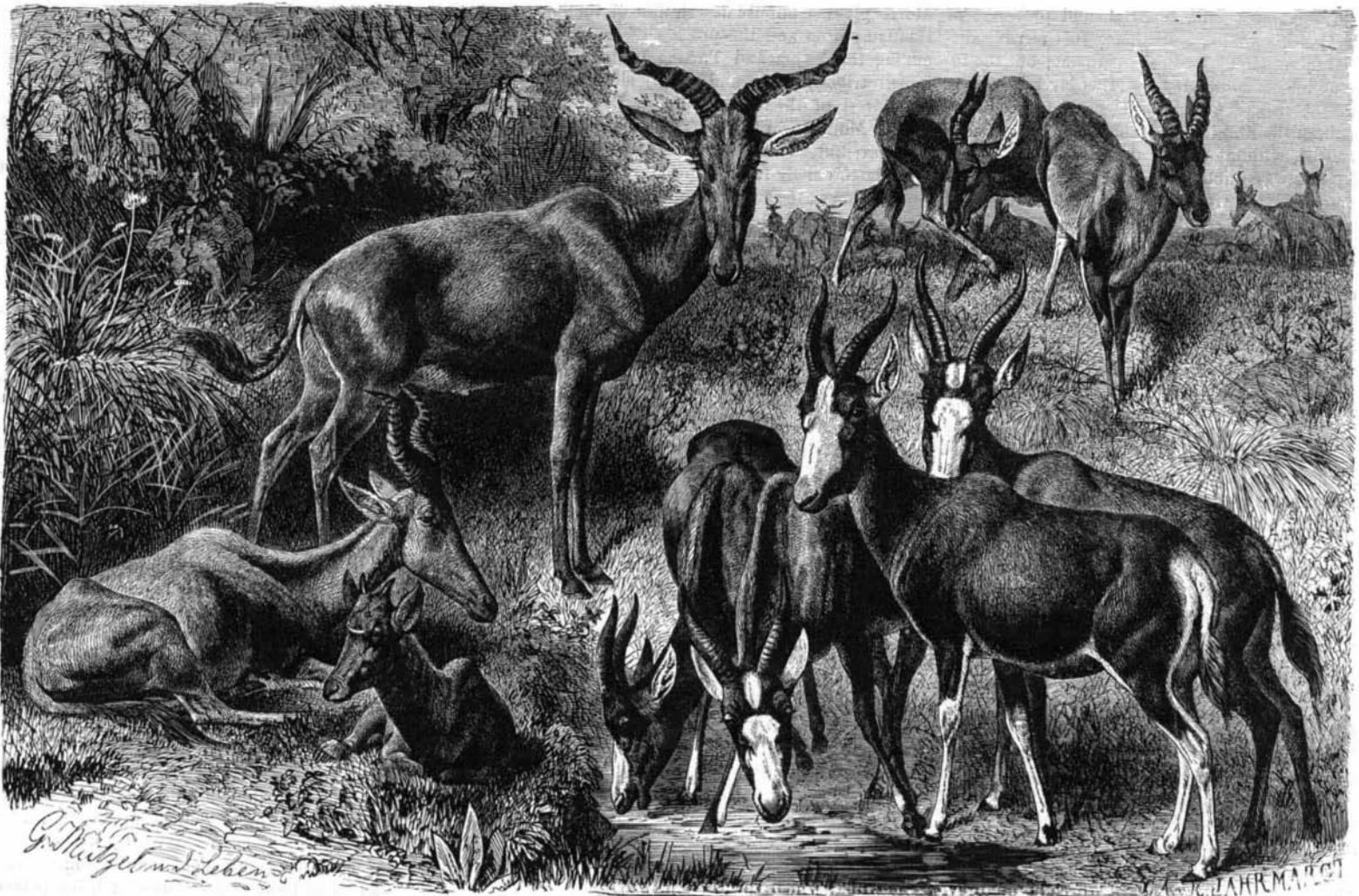
**The Sponge Fishery of Greece.**

The sponge fishery, one of the most profitable occupations, is carried on round the island of Kalimnos by the Hydriots, Speziots, and Kranidiots, who have obtained the highest reputation as divers in this dangerous trade. They go in small boats to the places where the sponges are believed to grow upon the rocks, and then scatter over the sea surface a mixture of oil and fine sand. The sand, of course, sinks, but the oil forms an ever-spreading layer, through which can be seen, as clearly as in a mirror, the places where the sponges lie. The diver carries a large knife in his mouth, and fortified internally by a glass of schnapps, drops over the side, sinking himself by means of a large stone. At the sea bottom he cuts off all the sponges in reach and crams them into a bag, emerging in a short time with his booty. In recent years diving bells have been introduced, consisting of caoutchouc bags connected with the air by means of a pump.

year's growth a fresh shoot, containing two or three buds, such as will always be found more or less swollen at the base of the leaf stems. It should be cut from the parent branch diagonally, with a smooth, clean cut that will bring off a little of the old bark as well, in order to make the condition as favorable as possible for the formation of roots.

Have ready a box or pot of rich mould. With a round, pointed stick, make a hole several inches deep, and fill it up with cleansand; insert the end of the slip in this sand to the depth of one or two inches; be sure to make it firm in the soil, and the sand acting as a percolator for moisture, you may keep your slip well watered. You can soon see, by the swelling of the buds and the dropping off of the old leaves, whether the slip is indeed taking root, but do not attempt to remove it to the place where you would wish it permanently to remain, until it has put out several sets of new leaves.

An ingenious way to raise a set of slips has been recommended by Mrs. Loudon, which we have tried with unvarying success. It is to take an earthenware flower pot, gallon size, and fill it more than half full of broken potsberds, pebbles, bits of slate, or such things; now set in the middle, on top of these refuse materials, another similar flower pot, half pint size, with the hole at its bottom stopped up tightly with a cork; let its mouth be even with that of the large, outer one; fill up the interstices with silver sand or other pure sand, and set in a row of slips all around, cut according to the directions given above. Keep the inner pot full of water all the time, but do not water the slips directly.



Sassaby.—(*Damalis lunatus*.)

Bonte-bok.—(*Damalis pygarga*.)

Bless-bok.—(*Damalis albifrons*.)

**SOUTH AFRICAN ANTELOPES.**

esteem; but as it soon becomes shy and wary, it is not easily to be killed.

Concerning one of these animals, Cumming gives the following curious anecdote: "Having shot a sassaby as I watched the water, he immediately commenced choking from the blood, and his body became swelled in a most extraordinary manner; it continued swelling, with the animal still alive, until it literally resembled a fisherman's float, when the animal died of suffocation. It was not only his body that swelled in that extraordinary manner, but even his head, and legs down to his knees." The poor animal must have been shot through the lungs in such a manner that the air was forced by its efforts at respiration between the skin and flesh, until it assumed that puffy aspect.

The regularly lyrate horns of the bonte-bok, or nunn, serve to distinguish it from its congener the sassaby.

The color of the bonte-bok is a purplish-red, the outside of the limbs deepening into a rich blackish brown, and contrasting strongly with the white hair which appears upon the face, the haunches, and front of the legs. From the vividly contrasting tints of the coat, it has derived the name of pied antelope, or white-faced antelope. The female is not so highly colored as the male, and the throat and under parts of the body are white. This animal is found in the district that borders the colony at the Cape of Good Hope, and lives in little herds of six or eight in number. Herds of much larger dimensions are said to be found in the more northern district. The height of the bonte-bok is nearly four feet at the shoulder, and its length is about six feet,

When first obtained the sponges are enveloped in a gelatinous slime. To remove this they are spread on a sandy beach above high water mark, and covered with the sand brought by the tides. This was always the plan in former days. Now sponges are frequently bleached with sulphurous acid or chloride of lime, and sometimes even with potassium manganate and hydrochloric acid.

Tousands of dollars are annually brought to Greece by the sponge fishery.

**The Culture of the Rose.**

Among other most excellent articles in the June number of *Scribner's Monthly*, is the following on the propagation of roses, which is both timely and instructive:

Every rose will not come from the slip. Of the three great divisions into which the rose family is separated, viz., the damask, the noisette, and the tea, the last two may be propagated with more or less readiness from the slip, or by budding; the first only by dividing the roots, and planting the seed, which latter method is resorted to, however, only when it is desired to obtain new varieties.

The best season for taking rose slips is in June, just after the profuse bloom of early summer is over, although a person who knows exactly how to cut a slip may find good cuttings throughout the warm months. Judgment and discernment are needed for the selection at all seasons. I know a generous lady who sent her friends immense armfuls of boughs, with hardly a real cutting upon them.

One should choose from a good vigorous branch of last

In about six weeks your slips will have fine roots, and can be potted. A hand glass always hastens the process of rooting, and enables you to take advantage of the sunshine, but if you are not provided with one, be careful to keep your plants in the shade until they show certain signs of independence of life.

Roses need very rich soil to bring them to perfection, thriving best in a mixture of well-rotted manure, sand, and garden loam, and to stint them of nourishment is indeed poor economy.

**A Luminous Sea.**

Last February the French ironclad *L'Armide* passed through a considerable stretch of milky or phosphorescent sea between Point de Galle and Aden. Lieutenant Pornain reports that the nights of February 9, 10, 12, and 13 were characterized by the phenomenon in all its splendor, the ship during this time traversing 660 miles (1,100 kilometers) in a mean latitude of 12° north, between the meridians of 61° and 51° east longitude. There was no thunderstorm, the sky was clear, the moon new, the barometer, thermometer, and hygrometer were regular, and a gentle northeast monsoon was blowing. The temperature of the surface of the water was constant at 25°. The sea was like a snow covered field in a clear night, and all traces of undulations were lost sight of. The milky look was hardly disturbed by the motion of the ship and working of the screw (which shows that the layer had considerable thickness). By day all disappeared; but the hue of the sea was somewhat